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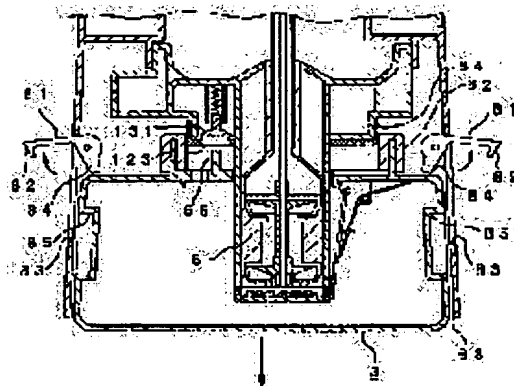
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(54) ATTACHING/DETACHING MECHANISM FOR APPARATUS FOR STORING LIQUID SUCH AS WATER

(57)Abstract:

PROBLEM TO BE SOLVED: To remove a tank or the like by simple operation.

SOLUTION: In a tank attaching/detaching mechanism, two fixed levers 81, 81 for holding a tank 3 are freely rotatably fitted to both the side faces of a cabinet. The fixed levers 81, 81 have the lower end parts thereof bent inwards to form claw-shaped engaging parts 82, 82. In the upper parts of the fixed levers 81, 81, tank pressurizing parts 84, 86 are arranged inwards projectingly. First, the engaging parts 82, 82 of the right and left fixed levers 81, 81 are removed from parts to be engaged 85, 85 of the tank 3 and pulled up, and the fixed levers 81, 82 are rotated. At this time, the tank pressurizing parts 84, 84 are abutted on the upper surface of the tank 3 and pressurizes the tank downwards at the same time. In this way, the tank 3 is pushed out downwards to be easily removed.



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## CLAIMS

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### [Claim(s)]

[Claim 1] The stop section in which it is the attachment-and-detachment device of the equipment which uses liquids, such as water, and liquid reservoir equipments, such as water made free by attachment and detachment, and the above-mentioned equipment stops the above-mentioned liquid reservoir equipment, The locked member by which it has the press section which presses the above-mentioned liquid reservoir section, and the above-mentioned liquid reservoir equipment is stopped by the above-mentioned stop section, The attachment-and-detachment device of liquid reservoir equipments, such as water characterized by the above-mentioned press section pressing the above-mentioned suppressed area while it has the suppressed area pressed by the above-mentioned press section and the stop condition of the above-mentioned stop section is canceled by the balking actuation from the above-mentioned equipment of the above-mentioned liquid reservoir equipment.

[Claim 2] The above-mentioned stop section and the above-mentioned press section are the attachment-and-detachment device of liquid reservoir equipments, such as water according to claim 1 characterized by establishing a shaft between the above-mentioned stop section and the above-mentioned press section, and being made free by rotation with the above-mentioned shaft while being constituted in one.

[Claim 3] The above-mentioned liquid reservoir equipment is the attachment-and-detachment device of liquid reservoir equipments, such as water according to claim 2 characterized by being detached and attached from the lower part of the above-mentioned equipment.

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## DETAILED DESCRIPTION

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### [Detailed Description of the Invention]

#### [0001]

[Field of the Invention] This invention relates to the attachment-and-detachment device of the reservoir equipment which applies to an air cleaner etc. and stores liquids, such as suitable water. In removing liquid reservoir equipment from the body of equipment which uses a liquid in detail, the attachment-and-detachment device

of liquid reservoir equipments, such as water which enabled it to detach and attach liquid reservoir equipment simply, is started by enabling it to perform the press to the stop discharge and liquid reservoir equipment to the stop section of liquid reservoir equipment by single actuation.

[0002]

[Description of the Prior Art] From the former, in order to use liquids, such as water and petroleum, the humidifier, the cold blast machine, the air cleaner, the oilstove, etc. are known as equipment equipped with the tank for water supply (liquid reservoir equipment). The tank used for these equipments is constituted free [ attachment and detachment ] so that liquids can be filled up and exchanged. With these equipments, when a body is generally equipped with a tank, it is held according to the stop device so that dedropping [ a body to ] may not be found in unexpected.

[0003]

[Problem(s) to be Solved by the Invention] However, when removing a tank from a body, after canceling the lock of a maintenance device first, the handle needed to be lengthened, the tank needed to be removed and attachment-and-detachment actuation became complicated.

[0004] Then, this invention solves the technical problem mentioned above, and proposes the attachment-and-detachment device of liquid reservoir equipments, such as water which can remove a tank by single actuation.

[0005]

[Means for Solving the Problem] In order to solve an above-mentioned technical problem, it sets to this invention. The stop section in which it is the attachment-and-detachment device of the equipment which uses liquids, such as water, and liquid reservoir equipments, such as water made free by attachment and detachment, and equipment stops liquid reservoir equipment, While having the press section which presses the liquid reservoir section, liquid reservoir equipment's having the locked member stopped by the stop section and the suppressed area pressed by the press section and the stop condition of the stop section being canceled by the balking actuation from the equipment of liquid reservoir equipment It is characterized by the press section pressing a suppressed area.

[0006] When removing this from the condition that the body was equipped with liquid reservoir equipment, the fixed means of liquid reservoir equipment, for example, a lever etc., is rotated. While the stop section separates from the locked member of liquid reservoir equipment by this, liquid reservoir equipment carries out suppressed area contact, and the press section extrudes this. Thus, liquid reservoir equipment is

removed from the body of equipment by single actuation.

[0007]

[Embodiment of the Invention] Then, one gestalt of operation of the air cleaner concerning this invention is explained to a detail with reference to a drawing.

[0008] Drawing 1 shows the configuration of the air cleaner 1 which is the gestalt of operation by this invention. This air cleaner 1 defecates the air inhaled from the inlet 11 using water, and discharges it from an exhaust port 12, and that function is roughly divided into inhalation discharge and clarification processing of air. Among these, clarification processing of air is performed by the atomiser 2 which sprays a liquid in the shape of a fog, and the water used here is supplied from the tank 3 formed in equipment.

[0009] First, the passage of air is explained. It is made that an air cleaner 1 has the cylindrical whole, an inlet 11 is established in the up side face (drawing right-hand side upper part) of the cabinet 21 of an air cleaner 1, and an exhaust port 12 is established in the top face of a cabinet 21. The passage of air is formed of the path which is similar to an exhaust port 12 through the air intake duct 22 from an inlet 11, and a jet pipe 23.

[0010] The inclination dashboard 24 which inclined caudad from the common-law marriage upper part of an inlet 11 is formed. Moreover, the area pellucida 26 which connoted LED25 for the electric-spectaculars effectiveness is attached in the common-law marriage lower part of an inlet 11. The space formed between these inclination dashboard 24 and the area pellucida 26 serves as an air intake duct 22. An air intake duct 22 leads air to a slanting lower part, and an atomiser 2 is arranged in the middle of an air intake duct 22.

[0011] The lower part of the inclination dashboard 24 serves as the 1st perpendicular dashboard 27, counters with an atomiser 2 and is allotted. Moreover, the whole surface of the area pellucida 15 counters an atomiser 2, and is allotted. On these outskirts of atomiser 2, an air intake duct 22 draws air downward [perpendicular].

[0012] The flow of air is turned up from the puddle section 28 to the upper part. That is, the 2nd perpendicular dashboard 31 is formed in the left-hand side of the 1st perpendicular dashboard 27, and between these perpendicular dashboards 27 and 31 serves as a jet pipe 23. It is in the middle of a jet pipe 23, and the fan (inhalation-of-air exhaust air section) 4 who forms the flow of air is allotted to the inclination dashboard 24 bottom. Air is attracted by this jet pipe 23 along the inclination of the top face of the inclination dashboard 24 in the slanting upper part.

[0013] A fan 4 discharges to the side the air inhaled from the bottom. The curve dashboard 32 which curved upward is formed in the side of a jet pipe 23. Air is drawn up along with the curve of this curve dashboard 32, and is discharged from the exhaust port 12 of the top face of a cabinet 21. Thus, the passage of the air from an inlet 11 to an exhaust port 12 is formed.

[0014] The level dashboard 33 with which the inside of a cylinder is divided horizontally is formed in the fan 4 bottom, the shaft 33 whose motor (mechanical component) 5 is a driving shaft is placed to the up side upside down, and attachment immobilization is carried out. A shaft 33 is arranged in the center of internal abbreviation of a cabinet 21, and the die length is set up so that a tip may arrive to near the base of a tank 3.

[0015] The atomiser (liquid feed zone) 2 and pumps (liquid conveyance section) 34 and 35 which are mentioned later besides a fan (inhalation-of-air exhaust air section) 4 are connected with this shaft 33. Thus, by making the driving means of a fan 4, an atomiser 2, and pumps 34 and 35 make it serve a double purpose by the single motor 5, components mark can be reduced and cost can be reduced.

[0016] Then, the atomiser (liquid feed zone) 2 which performs clarification processing of air is explained. An atomiser 2 is the lower part of an air intake duct 22, is arranged at the puddle section 28 bottom, and as shown in drawing 2, it consists of the rotation section 41 of the shape of a cylinder to which opening of the lower part was carried out, a water receptacle slot (liquid receiving part) 42 established in the inside lower limit of the rotation section 41, and a delivery (discharge part) 44 of a water pipe 43.

[0017] This atomiser 2 carries out supply spraying of the \*\*\*\*\* for air clarification into an air intake duct 22 by sprinkling the water which blew off from the water delivery 44 in the direction of a periphery with the water diffusion sheets 45 and 46 of two sheets, and passing the stoma (jet hole) 51 of the rotating rotation section 41. The circumference of this atomiser 2 serves as the water mixing section which mixes the air which drew in from the outside, and the sprayed air.

[0018] Many stomata 51 for spouting the water for air clarification are drilled by the peripheral face of the rotation section 41. a stoma 51 promotes diffusion of \*\*\*\*\* to spout -- as -- the shape of a cone -- \*\*\*\*\* -- it is made as [ locate / he and a major diameter are located in an external surface side, and / in an inside side / a narrow diameter portion ]. Moreover, the perimeter is covered in the inside lower limit of the rotation section 41, and the water receptacle slot 42 is formed. This water receptacle slot 42 is for accumulating temporarily [ before spraying the water

spouted from the water delivery 44 ].

[0019] From the core inside [ top-face ] the rotation section 41, the cylinder section 52 turns caudad and protrudes, insertion immobilization of this cylinder section 52 is carried out at a shaft 33, and the rotation drive of the rotation section 41 is carried out by the motor 5 ( drawing 1 ).

[0020] Inside the rotation section 41, the water delivery 44 of a water pipe 43 is allotted. This water pipe 43 is an aqueduct from a tank 3 ( drawing 1 ), and the shaft 33 by which a rotation drive is carried out focusing on the inside of a water pipe 43 is allotted. In addition, the water pipe 43 is fitted in the puddle section 28 ( drawing 1 ), and even if a shaft 33 rotates, it does not rotate.

[0021] It is the lower limit of the cylinder section 52 of the rotation section 41, the water delivery 44 is countered, and the circular sheet metal-like top water diffusion sheet (1st liquid diffusion section) 45 is attached horizontally. The great portion of water which blew off from the water delivery 44 to the upper part falls in this top water diffusion sheet 45.

[0022] It is attached in the top water diffusion sheet 45 bottom at [ it is the same and ] a level [ the circular sheet metal-like bottom water diffusion sheet (2nd liquid diffusion section) 46 ] with the water delivery 44. This bottom water diffusion sheet 46 diffuses the water which fell in the top water diffusion sheet 46 in the direction of a periphery.

[0023] The round hole corresponding to the water delivery 44 is prepared in the core of the bottom water diffusion sheet 46, and four mounting holes 53 are formed so that this round hole may be surrounded. Four projections 54 which protruded on the upper part of the water delivery 44 are inserted in this mounting hole 53, and the bottom water diffusion sheet 46 is attached. The rim of the bottom water diffusion sheet 46 is formed in the shape of tooth form. He is trying to sprinkle equally the water which blew off from the water delivery 44 by this to the perimeter.

[0024] In this atomiser 2, the water which blew off from the water delivery 44 as shown in drawing 3 is sprinkled with the water diffusion sheets 45 and 46, and falls into the water receptacle slot 42. This water goes up along with an internal surface on the turning effort of the rotating rotation section 41, and outside, water turns into \*\*\*\*\* (detailed waterdrop) and it blows off from a stoma 51. Moreover, when the water which blew off collides with the wall of the perpendicular dashboard 27 grade which constitutes the water mixing section, detailed waterdrop-ization is promoted further.

[0025] In addition, this atomiser 2 is made by the connection section 153,154 to a

body side as attachment and detachment are free, so that it may mention later. Moreover, as shown in drawing 1 , the area pellucida 26 is attached in the side of an atomiser 2, and a user can observe the interior now through the area pellucida 26. Two or more LED25 is attached in the interior of the area pellucida 26. At the time of the drive of an atomiser 2, \*\*\*\*\* by which this LED25 is sprinkled by switching on the light is illuminated, and lightning \*\*\*\*\* is brought about.

[0026] Then, the tank (liquid reservoir equipment, the reservoir section, liquid stripping section) 3 which stores the water for air clarification used for an atomiser 2 is explained. A tank 3 consists of a tank case 61 which is a cylinder-like hollow object as shown in drawing 5 which is the A-A sectional view of drawing 4 and drawing 4 R> 4, and an annular nozzle 62 attached in the top face.

[0027] The tank case 61 is formed with the transparent quality of the material, and the outer diameter is set up a little smaller than the bore of the lower opening 63 ( drawing 1 ) of a cabinet 21 ( drawing 1 ) so that it may be fitted in into the body of equipment.

[0028] Moreover, a nozzle 62 is a part in which the press fit section 64 ( drawing 10 R> 0) of a body is pressed fit, is offset from the core of the tank case 61, and is attached. Since the location of the press fit section 64 ( drawing 10 ) by the side of a body is also set up corresponding to this nozzle 62, when a body is equipped with a tank 3, it always becomes predetermined direction, and the tank input 65 and the protrusion cylinder part 176 mentioned later are allotted to a position.

[0029] The knurling tool section 69 of a skid is formed in the periphery of a nozzle 62. It is the inside of a nozzle 62 and the circular pump insertion hole 63 with which pumping plant 6 ( drawing 1 ) is inserted as shown in drawing 4 is drilled in the top face of the tank case 61. Moreover, the falcation tank input 65 where the pump insertion hole 63 is adjoined and water flows from a body side is drilled.

[0030] The tank lid (lid) 71 of a circle configuration which is shown by the dotted line is attached in the top inside of a tank 3. When a tank 3 is removed from the body of equipment, this tank lid 71 plugs up the pump insertion hole 63 and the tank input 65, and prevents exsorption of water.

[0031] As shown in drawing 6 , it is the inside of a nozzle 62, a superior lamella 79 is inserted in the top face of a tank 3, it is equipped with a nozzle 62 from on the, and the edge of a superior lamella 79 is fixed. Besides, the isomorphism-like hole is prepared in the plate 79 corresponding to the pump insertion hole 63 and the tank input 65 which were mentioned above. Besides it is the top face of a plate 79, and the press boss (projected part) 66 for pushing up the exhaust port bulb 131



( drawing 10 ) mentioned later is set up by the edge of the tank input 65.

[0032] Besides, the thin ridge spatula 64 made of rubber is put between the plate 79 and the top face of a tank 3. This ridge spatula 64 drops the waterdrop adhering to that external surface, when it projects slightly in the method of inside from the inner skin of the pump insertion hole 63 and pumping plant 6 is extracted.

[0033] It is the top inside of a tank 3, and the \*\*\*\*-like lid attachment section 72 turns to the edge of the pump insertion hole 63 caudad, it protrudes, and the tank lid 71 is hung here free [ rotation ]. Moreover, this lid attachment section 72 is approached, the spring attachment section 73 turns to the top inside of a tank 3 caudad, and protrudes on it, and the spring 74 is looped around here.

[0034] The end of a spring 74 was inserted in the spring hanging section 75 prepared in the inferior-surface-of-tongue side of the tank lid 71, and the other end is in contact with the top inside of a tank 3. The tank lid 71 is energized in the closed direction with this spring 74. In addition, a rib 76 is set up so that the pump insertion hole 63 and the tank input 65 may be surrounded, and if the tank lid 71 closes, it will stick to this rib 76.

[0035] This tank lid 71 is pressed by the pumping plant 6 inserted in the pump insertion hole 63, and is opened wide, and it is closed by the energization force of a spring 74 when pumping plant 6 is extracted. By opening and closing the tank lid 71 corresponding to insertion and pulling out of pumping plant 6, exsorption of water can be effectively prevented at the time of the conveyance after removing a tank 3 etc.

[0036] A tank 3 is attached in the lower part of a cabinet 21 free [ attachment and detachment ] according to the attachment-and-detachment device 7 of a tank, as shown in drawing 1 . By the attachment-and-detachment device 7 of this tank, two fixed levers 81 and 81 for holding a tank 3 are attached in the both-sides side of a cabinet 21 free [ rotation ].

[0037] The lower limit section is refracted inside and these fixed levers 81 and 81 serve as the pawl-like stop sections 82 and 82. On the other hand, locked members 85 and 85 are cut in the side face of a tank 3, the stop sections 82 and 82 are stopped here, and a tank 3 is held. The lever actuation holes 83 and 83 are formed in the left and right laterals of a tank 3, and a user can perform stop or discharge for the fixed levers 81 and 81 through here. In the condition that these fixed levers 81 and 81 held the tank 3, the lateral surface is giving an exterior feeling of unification in accordance with the peripheral face of a cabinet 21.

[0038] The tank press sections 84 and 84 protrude on the upper part of the fixed

levers 81 and 81 towards the inner direction. That is, the shaft of the fixed levers 81 and 81 comes to be arranged between the stop sections 82 and 82 and the press sections 84 and 84. This is for the tank press sections 84 and 84 to contact the top face (suppressed area) of a tank 3, and to extrude this caudad at the same time it rotates the fixed levers 81 and 81 and the stop by the stop sections 82 and 82 is canceled.

[0039] Where a body is equipped with a tank 3, while the press fit section 64 ( drawing 10 ) by the side of a body is pressed fit inside the nozzle 62, pumping plant 6 is inserted in the pump insertion hole 63. Moreover, it is pressed by the lower limit of pumping plant 6, and the tank lid 71 is open. In addition, about the detail of wearing of a tank 3 and balking actuation, it mentions later with actuation of the exhaust port bulb 131.

[0040] Then, pumping plant 6(liquid conveyance section) 6 for supplying the water in a tank 3 to an atomiser 2 are explained.

[0041] Pumping plant 6 consists of a cylinder-like outer case 91, filter equipment 8 attached in the lower limit, and two pumps 34 and 35 attached in the outer case 91 interior, as shown in drawing 7 .

[0042] The filter equipment 8 shown in drawing 8 removes the dust contained in the water to inhale. The case 92 of filter equipment 8 is formed in a thin circular hollow object, and the center of the interior is divided by the dashboard 93. While was divided, the inhalation opening bulb (valve element) 97 which can be opened and closed and which was formed of India rubber etc. is formed in the 1st room 96, and the filter element (filter media) 95 is stuffed into the 2nd room 94 of another side.

[0043] Therefore, the 1st room 96 where the inhalation opening bulb 97 is arranged, and the 2nd room 94 where a filter element is allotted will be horizontally allotted to juxtaposition, and thin shape-ization of filter equipment 8 is attained.

[0044] It is the base of the 1st room 96 and the circle-like filter inhalation opening 104 is formed corresponding to the inhalation opening bulb 97 bottom. the inhalation opening bulb 97 formed the bulb hanging section 98 of the letter of the abbreviation for T characters in the thin disk object -- it is. This bulb hanging section 98 is inserted in between the two protrusion sections 101,101 set up by the internal base of a case 92, serves as a shaft, and is made as closing motion is free.

[0045] The passage hole 102 which some dashboards 93 are missing and leads to a filter-element 95 side is formed. Moreover, the semicircle-like filter exhaust port 103 is formed in the top face of the 2nd room 94 in which the filter element 95 was put. Unnecessary dust etc. is removed by the filter element 95, and the water which

flowed from the filter inhalation opening 104 is sent to pumps 34 and 35 ( drawing 7 ) from the filter exhaust port 103.

[0046] Closing motion of the inhalation opening bulb 97 is controlled by the pressure inside pumping plant 6 and filter equipment 8. That is, if pumps 34 and 35 ( drawing 7 ) drive and water or air is sent compulsorily up, by this flow, the case 92 interior will serve as negative pressure, and the inhalation opening bulb 97 will be opened wide. Moreover, when pumping plant 6 is extracted from a tank 3 ( drawing 1 ), since negative pressure is lost, the inhalation opening bulb 97 closes with the self-weight of the inhalation opening bulb 97. Thus, by performing closing motion of the inhalation opening bulb 97 using negative pressure, the device for bulb closing motion can be simplified and cost can be reduced.

[0047] As shown in drawing 7 , a pump case 111 is attached in the filter equipment 8 bottom. A pump case 111 connotes pumps 34 and 35, and is formed, and the lower pump 34 approaches filter equipment 8, and is arranged, and from a pump 34, the upper pump 35 keeps fixed distance and is arranged. It connects between the up-and-down pumps 34 and 35 in the aqueduct 112 of a comparatively thick bore. Two pumps 34 and 35 were formed for heightening the water supply force of water.

[0048] As the pump dashboard section 113 crosses the inside of the cylinder of a pump case 111 in the top face of the upper pump 35, it is prepared in it, and two or more passage holes 114 are drilled in the periphery toward a circumferential direction. Water is sent to the bottom through this passage hole 114 from pumps 34 and 35.

[0049] These pumps 34 and 35 are connected by the perpendicular shank 39 in one, and insertion immobilization of the shaft 33 is carried out at this shank 39. Insertion support of the rotation of the lower limit of a shaft 33 to the bearing 115 of the pump case 111 lower part is enabled.

[0050] Moreover, as shown in drawing 1 , when it equips with a tank 3, pumping plant 6 was inserted into the tank 3, and both pumps 34 and 35 have hidden it underwater. This is based on the following reason. For example, when pumps 34 and 35 are arranged into air and water is sent out only at the time of use, water must be inhaled by discharging air at the time of rotation starting of pumps 34 and 35. That is, since water is inhaled using the negative pressure by discharge of air, while leading to a cost rise, endurance is also inferior [ an airtight high pump is needed, and ].

[0051] However, if it is in the condition which pumps 34 and 35 already hid underwater like this application at the time of a halt, water can be inhaled with the negative pressure generated by water supply of water at the time of rotation

starting. That is, since water can be supplied without being based on discharge of air, an airtight high pump becomes unnecessary, it is cheap and a pump with high endurance can be used.

[0052] It returns to drawing 7 , and in the center of the pump dashboard section 113, the cylinder section 116 is set up up, and insertion support of the rotation of a shaft 33 is enabled here. This cylinder section 116 carries out the work as bearing of a shaft 33.

[0053] The upper part of a pump case 111 turns into the cone section 117, it narrows, and water pipes 43 are formed successively by the upper limit. A water pipe 43 supplies water to the atomiser 2 ( drawing 2 ) mentioned above. In addition, the inflow to the water pipe 43 with a thin bore is duly performed by forming the cone section 117.

[0054] Then, the liquid conveyance device section 9 which collects the water sprinkled by the atomiser 2 in drawing 1 on a tank 3 and which is a means is explained.

[0055] This liquid conveyance device section 9 consists of the puddle section 28 which collects the water from an atomiser 2, and an annular drainage ditch (conveyance way) 121 which leads the water from this puddle section 28 to a tank 3.

[0056] The puddle section 28 is formed in concave dished, and is arranged under the atomiser 2. The perimeter of a water pipe 43 bulges a little, and is formed in the shape of an approximate circle drill so that the uptake of the water can be carried out certainly here.

[0057] The water receptacle exhaust port 122 which leads to the annular drainage ditch 121 is established in this puddle section 28. In addition, although not illustrated, the inclination slight on the whole is attached so that water may gather in the water receptacle exhaust port 122, and the circumference of the water receptacle exhaust port 122 may become the lowest as for the puddle section 28.

[0058] The annular drainage ditch 121 forms the path which does 1 round of abbreviation of from the water receptacle exhaust port 122, and results in the body exhaust port 123 as shown in drawing 9 . As the annular drainage ditch 121 becomes so low that it is close to the body exhaust port 123, it is a loose ramp, and water is led by this inclined plane.

[0059] Although mentioned later, when equipment fell, we decided to drain by the annular drainage ditch 121 for preventing a leak by covering this annular drainage ditch 121 with water, and preventing the inflow of air.

[0060] As shown in drawing 10 , one step of circumference of the body exhaust port

123 of the annular drainage ditch 121 is low, and the press fit section 64 pressed fit in the nozzle 62 of a tank 3 at this periphery side is attached. A periphery curves slightly, the press fit section 62 bulges, and when pressed fit, the pressure welding of the part for this bend is carried out to the inner skin of a nozzle 62, and it ensures wearing of a tank 3.

[0061] The valve system 13 for preventing a leak to the body exhaust port 123 is formed. This valve system 13 consists of an exhaust port bulb (valve element) 131 attached in the body exhaust port 123 as shown in drawing 10 , and a press boss 66 for pushing up this.

[0062] The exhaust port bulb 131 consists of \*\*\*\*\* 132 formed of India rubber etc., and a support shaft 133 prepared in the bottom curve side of the \*\*\*\*\* 132, turns \*\*\*\*\* 132 down and is attached. The outer diameter of this \*\*\*\*\* 132 is set up more greatly than the bore of the body exhaust port 123, and when the exhaust port bulb 131 sticks to the body exhaust port 123, it closes this. The concave contact section 134 in which the inferior surface of tongue of the exhaust port bulb 131 curved according to the configuration of the press boss's 66 upper limit section is formed.

[0063] On the other hand, a tubed part 135 turns to the head-lining side which counters the exhaust port bulb 131 caudad, it is set up, the compression spring 136 is fitted in the inside, and the support shaft 133 of the exhaust port bulb 131 is inserted from under the. Therefore, the exhaust port bulb 131 is energized by the compression spring 136 in the lower part, i.e., the closed direction.

[0064] In the condition of having been equipped with the tank 3, the press boss 66 of a tank 3 contacts the inferior surface of tongue of the exhaust port bulb 131, the energization force of a compression spring 136 is resisted, and this is pushed up. Therefore, the exhaust port bulb 131 is opening and water flows into a tank 3 through the body exhaust port 123.

[0065] Moreover, where a tank 3 is removed, since the press boss's 66 press is lost as shown in drawing 11 , \*\*\*\*\* 132 of the exhaust port bulb 131 sticks and closes the valve to the body exhaust port 123 according to the energization force of a compression spring 136. In addition, packing (not shown) is attached in the top side of the body exhaust port 123, the exhaust port bulb 131 sticks to this packing, and a leak is prevented.

[0066] Thus, since closing motion of the exhaust port bulb 131 is performed with a simple configuration corresponding to attachment and detachment of a tank 3, when a tank 3 is removed from a body, it is prevented that the water which remained to

the puddle section 28 or the annular drainage ditch 121 leaks out outside from the body exhaust port 123.

[0067] The actuation is explained below about the air cleaner 1 constituted as mentioned above. In drawing 1 , if a power source is switched on and initiation of air clarification processing is directed, the rotation drive of a fan 4, an atomiser 2, and the pumps 34 and 35 will be carried out by the motor 5. A suction force occurs and external air is inhaled from an inlet 11 by the rotating fan 4.

[0068] Since there is also work which makes the circulation root of the compulsory air over the inside and outside of air-cleaner 1 generate, a fan 4 can promote indoor air cleaning and can defecate wide range indoor air.

[0069] On the other hand, with the pumps 34 and 35 by which a rotation drive is carried out, pumping from a tank 3 is started and water is supplied by the atomiser 2 through a water pipe 43. As shown in drawing 3 , this water is spouted from the water delivery 44 of a water pipe 43. Gushing water falls on the bottom diffusion sheet 46 in the top water diffusion sheet 45. This water joins the water which carried out the direct run off from the water delivery 44, and is sprinkled in the direction of a periphery from the rim of the bottom water diffusion sheet 46. Since the rim of the bottom water diffusion sheet 46 is made with the shape of tooth form at this time, water covers the perimeter and is sprinkled by abbreviation homogeneity.

[0070] The great portion of sprinkled water falls into the water receptacle slot 42 inside the rotation section 41 which carries out high-speed rotation. The water temporarily filled in the water receptacle slot 42 goes up along with an internal surface on the turning effort of the rotation section 41, and is spouted outside from a stoma 51.

[0071] As shown in drawing 12 , when water passes the stoma 51 of the rotation section 41, it is subdivided by many detailed granules, and is sprinkled in an air intake duct 22, the perimeter of an atomiser 2 is filled with fog-like water, and this serves as the water mixing section. Uptake of the dust contained in the inhaled air, the stinking thing component, etc. is adsorbed and carried out to this \*\*\*\*\* . Thus, by subdividing and sprinkling water, the touch area of air and water is enlarged, it can be made easy to adsorb dust etc. at waterdrop, and the cleanliness efficiency of air can be raised.

[0072] Moreover, since water is sprinkled in this atomiser 2 using the turning effort of the rotation section 41, it compares, when sprinkling direct water, for example by the water supply force of a pump, and sufficient spraying can be performed even if

the water supply force of pumps 34 and 35 ( drawing 1 ) is low. Therefore, a cheap pump can be used and cost reduction can be planned.

[0073] The air containing waterdrop reaches the downward puddle section 28 as it is. In the puddle section 28, air changes the flow up that it should flow into a jet pipe 23. Here, the waterdrop containing dust, dust, etc. also trickles into the puddle section 28 the water which trickled into the puddle section 28 and adhered to the internal surface around an atomiser 2. With the separated water, dust, dust, etc. which were contained in air are removed by this, and air is defecated.

[0074] Water collected on the puddle section 28 flows into the annular drainage ditch 121 from the water receptacle exhaust port 122, is led to this annular drainage ditch 121, and reaches the body exhaust port 123. Water is collected from here by the tank 3 through the tank input 65 of a tank 3, and it is again used as water for air clarification.

[0075] The air defecated on the other hand as shown in drawing 1 goes up the inside of a jet pipe 23, and is discharged outside by the fan 4 from an exhaust port 12. Thus, since an air cleaner 1 contacts air and water and is compulsorily adsorbed in the dust in air, clarification of air can be efficiently performed with an easy configuration.

[0076] Although it was made for water to flow into a tank 3 through the tank input 65 in this example as shown in drawing 12 , it is good also as a conveyance device in which water is collected on a tank 3 using the cone section 117 of the pumping plant 6 interior as shown in drawing 1313 .

[0077] In this case, inlet port 141 and an exhaust port 142 are formed in the side face of the outer case 91 of pumping plant 6. Opening of the inlet port 141 is carried out to the trailer 143 of the annular drainage ditch 121 most located in inner circumference, opening of the exhaust port 142 is carried out corresponding to the lower part of the cone section 117, and it is allotted to the interior of a tank 3. That is, it is the interior of an outer case 91, an inner circumference side is used as an aqueduct (taking-out means of water) 43, i.e., a water pipe, and a periphery side is used as a drainage ditch 144 (carrying-in means of water).

[0078] The water to which the annular drainage ditch 121 has been led flows in an outer case 91 through inlet port 141. This water falls the inside of a drainage ditch 114 caudad, is led to the inclined plane of the cone section 117, flows out of an exhaust port 142, and is collected in a tank 3.

[0079] Thus, what is necessary is just to be the inside of the outer case 91 of pumping plant 6, and for it to become unnecessary to establish the tank input 65

( drawing 4 ) in the top face of a tank 3, and to form one pump insertion hole 63 by arranging a water pipe 43 on an inner circumference side, and making the periphery side of a water pipe into a drainage ditch 144. Therefore, the configuration of a tank 3 will become simple and a conversion cost can be reduced. Moreover, since the cone section 117 is used, a drainage ditch is not covered with water and wastewater is performed duly.

[0080] Then, attachment-and-detachment actuation of a tank 3 is explained. Although reused circulating through the water used with the atomiser 2, since dirt becomes severe, it is necessary to discard periodically the water used for a long period of time.

[0081] First, actuation of removing a tank 3 from the condition that the body was equipped with the tank 3 as shown in drawing 1 is explained.

[0082] As first shown in drawing 14 , the stop sections 82 and 82 of the fixed levers 81 and 81 on either side are removed from the locked members 85 and 85 of a tank 3 through the lever actuation holes 83 and 83, and it pulls up up, and the fixed levers 81 and 81 are rotated. At this time, the tank press sections 84 and 84 contact the top face (suppressed area) of a tank 3, and press this caudad. A tank 3 is extruded a little by this from the lower opening 63.

[0083] The press fit section 64 by the side of the body currently pressed fit in coincidence inside the nozzle 62 of a tank 3 pulls out. Moreover, the press boss 66 of a tank 3 separates from the exhaust port bulb 131, and the exhaust port bulb 131 sticks to the body exhaust port 123, and prevents exsorption of water.

[0084] If the tank 3 is caudad extracted by lengthening the handle (not shown) of a tank like drawing 15 from this condition, pumping plant 6 will secede from the pump insertion hole 63 gradually. The tank lid 71 wide opened in contact with the tip of pumping plant 6 in connection with this is closed according to the energization force of a spring 74.

[0085] And if a tank 3 is extracted from the lower opening 63 of a body as shown in drawing 16 , pumping plant 6 will secede from the pump insertion hole 63 completely. At this time, the pump insertion hole 63 and the tank input 65 are completely closed by the tank lid 71. Now, removal of a tank 3 is completed.

[0086] Thus, since discharge and extrusion of a stop of a tank 3 can be performed to coincidence only by pulling up the fixed levers 81 and 81, removal actuation of a tank 3 is easy.

[0087] In addition, since the water which the ridge spatula 64 contacted the peripheral face of pumping plant 6, and adhered to it is removed when seceding from



a tank 3 from pumping plant 6, water does not drip from pumping plant 6 immediately after removing a tank 3.

[0088] The hand of a user with a tank 3 seems moreover, to fall inside the nozzle 62 on the top face of a tank, and not to get wet, since a tank 3 is caudad extracted even when water drips from the filter equipment 8 of pumping plant 6.

[0089] On the other hand, when equipping with a tank 3, a tank 3 is pushed in from the opening 63 of a body. The press fit section 64 of a body is pressed fit in a nozzle 62 by this, and the press boss 66 pushes up and opens the exhaust port bulb 131 by it. After equipping with a tank 3 completely, the stop sections 82 and 82 are stopped to the locked members 85 and 85 of a tank 3. Now, a tank 3 is held certainly.

[0090] Then, the maintenance approach of an air cleaner 1 is explained. Since the interior of equipment becomes dirty by the hydrologic cycle containing dust etc. when an air cleaner 1 is used for a long period of time, cleaning periodically is desirable.

[0091] From the condition which removed the tank 3 shown in drawing 17 , this air cleaner 1 can remove an atomiser 2, the liquid conveyance device section 9, and pumping plant 6 as one, and can perform cleaning of an atomiser 2 etc.

[0092] The rim of the puddle section 28 is started up, and the press fit section 155 covers the perimeter, it is set up, and the body is equipped with the liquid conveyance device section 9 by pressing this fit in a body side. Moreover, as shown in drawing 3 , a shaft 33 is made as it is disengageable on an atomiser 2.

[0093] As shown in this drawing, a shaft 33 consists of an arm shaft horizontal 151 and a lower shaft 152, insertion immobilization of the lower part of an arm shaft horizontal 151 is carried out at the bottom connection section 153, and, on the other hand, insertion immobilization of the upper part of a lower shaft 152 is carried out at the bottom connection section 154. In addition, the rotation section 41 of an atomiser 2 is attached in the bottom connection section 154.

[0094] The bottom connection section 153 is the cylinder object with which the top triangular pyramid section 156 (interior of a proposal) was formed for the lower part, as shown in drawing 19 , and in accordance with shaft orientations, the insertion hole 161 ( drawing 3 ) of the predetermined depth is formed from the inferior surface of tongue focusing on the arm shaft horizontal 151. The 2nd page which the cross section of the insertion hole 161 counters is formed in the shape of radii, and other 2nd page is formed in a plane ( drawing 20 A ).

[0095] On the other hand, the bottom connection section 154 is the prism by which

the bottom triangular pyramid section 157 (interior of a proposal-ed) was formed in the upper part, and the cross section is formed corresponding to this so that it can insert in the insertion hole 161 ( drawing 20 A) of the bottom connection section 153. [0096] Moreover, it is prepared in the 2nd page to which the connection heights 162,162 counter the interior of the insertion hole 161 of the bottom connection section 153 as shown in drawing 3 . The connection crevice 163,163 where these connection heights 162,162 are hung on the 2nd page which the bottom connection section 154 counters on the other hand is formed.

[0097] By hanging these connection heights 162,162 on the connection crevice 163,163, the up-and-down connection section 153,154 is connected. Moreover, since the bottom connection section 154 is formed in the combination of a circular face and a flat surface as shown in drawing 20 A, when the bottom connection section 153 rotates, the bottom connection section 154 also rotates in connection with this.

[0098] Next, in this air cleaner 1, the operating procedure of removal of an atomiser 2, pumping plant 6, and the liquid conveyance device section 9 is explained. From the condition that the tank 3 was removed like drawing 17 , pumping plant 6 grade is lengthened caudad. As this shows to drawing 18 , while the press fit section 155 escapes from a body, the bottom connection section 154 separates from the bottom connection section 153, and an atomiser 2, pumping plant 6, and the liquid conveyance device section 9 can be united, it can dissociate from a body, and an opening 63 can extract these.

[0099] The dirt adhering to an atomiser 2 or the puddle section 28 can be easily cleaned by removing an atomiser 2, pumping plant 6, and the liquid conveyance device section 9. Moreover, a parts replacement is easy also when a pump 34 and each part article of 35 grades break down.

[0100] Moreover, when equipping a body with the removed atomiser 2, pumping plant 6, and the liquid conveyance device section 9, these are put in from the opening 63 of a body and the press fit section 155 is pressed fit in a body side. At this time, as shown in drawing 20 A, it is necessary to insert the bottom connection section 154 with the predetermined sense to the configuration of the insertion hole 161 of the bottom connection section 153.

[0101] Here, as shown in drawing 20 B and drawing 21 , when connecting the bottom connection section 154 to the bottom connection section 153, triangular pyramid section 156,157 comrades contact first. At this time, the crowning of the bottom triangular pyramid section 157 of the bottom connection section 154 is guided on

the slant face of the top triangular pyramid section 156 of the bottom connection section 153, and as shown in drawing 22 , each other is rotated for the bottom connection section 154 and the bottom connection section 153 by the opposite direction. By this, the bottom connection section 154 serves as predetermined sense to the insertion hole 161, as shown in drawing 20 A.

[0102] If the bottom connection section 154 is inserted in the insertion hole 161 in this condition, as shown in drawing 3 , the connection heights 162,162 will be hung on the connection crevice 163,163, and an arm shaft horizontal 151 and a lower shaft 152 will be connected. Therefore, when connecting the bottom connection section 153 and the bottom connection section 154, it does not need to be anxious about the sense of the bottom connection section 154, and wearing becomes easy.

[0103] Thus, since an air cleaner 1 can remove an atomiser 2, pumping plant 6, and the liquid conveyance device section 9 as one, cleaning or a parts replacement is easily maintainable.

[0104] Then, at least the water of the air cleaner 1 concerning this invention explains detection equipment 10. This air cleaner 1 is controlled to suspend rotation of a motor 5 automatically, when the water currently stored in the tank 3 decreases in number from the amount of conventions, or when a tank 3 is removed from a body working [ equipment ].

[0105] At least the water which shows fluctuation of the water level of this tank 3 and decision of existence to drawing 23 is performed by detection equipment 10. At least this water detects fluctuation of the water level of a tank 3, and the existence of a tank 3, without detection equipment 10 performing electric connection, such as a signal line, for a tank 3 and a body.

[0106] It floats and at least water consists of the sections 171 and the detecting elements 172 which detect fluctuation of this float section 171 for which detection equipment 10 was attached in the interior of a tank 3. The vertical migration of this float section 171 into a tank is attained from the installation \*\*\*\* rod-like structure 173 and the float 174 with which the lower limit of this rod-like structure 173 was equipped.

[0107] While the cylinder-like pars-basilaris-ossis-occipitalis cylinder section 175 is formed in the internal base of a tank 3, the cylinder-like protrusion cylinder part (lobe) 176 is formed in the top face of a tank 3. The lower limit of a rod-like structure 173 is formed in tubed, the inside is made with the insertion hole 177, and the pars-basilaris-ossis-occipitalis cylinder section 175 is inserted here. Moreover, the upper limit of a rod-like structure 173 is inserted in the interior of the protrusion

cylinder part 176 of a tank 3.

[0108] The light transmission hole (translucent part) 178 used for detection of the detecting element 172 mentioned later is formed in the upper part of a rod-like structure 173. This rod-like structure 173 is fabricated except light transmission hole 178 with the black quality of the material so that light may not be made to penetrate. Moreover, detection equipment 10 detects the location of a rod-like structure 173 optically, and since at least this water needs to pass light, it is fabricated with the quality of the material with a transparent tank 3.

[0109] When this rod-like structure 173 is in the best location, it is made as [ fall out / the pars-basilaris-ossis-occipitalis cylinder section 175 / from the insertion hole 177 ], and when a rod-like structure 173 is in the lowest location, it is made as [ escape / from a rod-like structure 173 / from the protrusion cylinder part 176 ]. that is, a rod-like structure 173 is held to the pars-basilaris-ossis-occipitalis cylinder section 175 and the protrusion cylinder part 176 -- having -- the predetermined range -- the upper and lower sides -- it is attached movable.

[0110] This rod-like structure 173 moves by the buoyancy of float 174 corresponding to the water level of the tank 3 interior. for example, the water level of a tank 3 -- a convention -- water level -- when it is over L, a rod-like structure 173 is located in the best location by the buoyancy given by float 174. At this time, that upper limit projects and location regulation of the rod-like structure 173 is carried out in contact with the inside upper part of a cylinder part 176. on the other hand -- the water level of a tank 3 -- a convention -- water level -- when it comes below L, a rod-like structure 173 moves caudad with float 174 corresponding to water level.

[0111] The detecting element 172 shown in drawing 23 and drawing 24 consists of a photo interrupter 181 which is a transparency mold sensor, a protection-from-light lever 182 for malfunction prevention, and a supporter 183 which supports the protection-from-light lever 182.

[0112] As shown in drawing 24 , it is the inside of a cabinet 21 and the dashboard section 184 level to the tank 3 up side is formed, and the cylinder-like attachment boss 185,185 protrudes on the top face of this dashboard section 184. A photo interrupter 181 turns a light-emitting part 187 and a light sensing portion 188 ( drawing 25 ) down, and is attached in this attachment boss's 185,185 upper part with a screw 191,191. Corresponding to between the light-emitting part 187 of a photo interrupter 181, and light sensing portions 188, the round hole 199 in which the protrusion cylinder part 176 ( drawing 23 ) is inserted is formed.

[0113] As shown in drawing 25 , a light-emitting part 187 is attached in well known one side, and, as for a part for the horseshoe part of a photo interrupter 181, a light sensing portion 188 is attached in another side. Here, whether the light from a light-emitting part 187 reached the light sensing portion 188 detects fluctuation of the water level of a tank 3.

[0114] It returns to drawing 24 , and a supporter 183 is bent in the shape of side view abbreviation for L characters, and the horizontal plate section 192 is fixed with a screw 191,191 between the attachment boss 185,185 and a photo interrupter 181. The top-surface-view abbreviation KO character-like lever tie-down plate section 194 is formed in perpendicular Itabe's 193 upper part.

[0115] The diameter of the lever shaft 195 is carried out among Itabe whom the lever tie-down plate section 194 counters, and the protection-from-light lever 182 is attached downward in this lever shaft 195 free [ rotation ]. This protection-from-light lever 182 makes the lower limit of a prism member refracted, and forms the large protection-from-light section 195 of width of face.

[0116] As shown in drawing 23 , when it is equipped with a tank 3, the protrusion cylinder part 176 of a tank 3 inserts in a round hole 199, the protection-from-light lever 182 is contacted, and this is rotated counterclockwise. On the other hand, when a tank 3 is removed, the protection-from-light section 195 is allotted between the light-emitting part 187 of a photo interrupter 181, and a light sensing portion 188 ( drawing 25 ), and interrupts an optical path.

[0117] At least the water constituted as mentioned above explains the actuation about detection equipment 10. First, the detection about fluctuation of the water level of a tank 3 is described.

[0118] As shown in drawing 23 , when it is equipped with the tank 3 which was filled to the brim with water, the rod-like structure 173 is pushed up by the buoyancy of float 174 to the best location. At this time, as shown in drawing 25 , the light transmission hole 178 is in agreement with the optical path of the light-emitting part 187 of a photo interrupter 181, and the light from a light-emitting part 187 passes the light transmission hole 178, and reaches a light sensing portion 188. therefore, the water level of a tank 3 -- a convention -- water level -- it is judged that it is over L.

[0119] As shown in drawing 26 , when the water level of a tank 3 decreases from default value L, a rod-like structure 173 moves caudad. By this, the light transmission hole 178 shifts from an optical path, a rod-like structure 173 interrupts the light from a light-emitting part 187, and the light-receiving object 188 ( drawing

25 ) does not detect light. This \*\*\*\*\* that water level fell and the drive of a motor 5 ( drawing 1 ) is stopped.

[0120] Then, the detection about the existence of a tank 3 is explained. As shown in drawing 23 , when being equipped with the tank 3, the protection-from-light lever 182 is counterclockwise rotated in contact with the protrusion cylinder part 176 of a tank 3.

[0121] Since regulation of the protrusion cylinder part 176 is removed when this tank 3 is removed during operation of an air cleaner 1, the protection-from-light lever 182 is allotted to an abbreviation perpendicular, as it rotates clockwise and a two-dot chain line shows. At this time, the protection-from-light section 195 is allotted to a location with the light transmission hole 178 of a rod-like structure 173, and interrupts the light from the light-emitting part 187 ( drawing 25 ) of a photo interrupter 181. It is detected by this that the tank 3 was removed and the drive of a motor 5 ( drawing 1 ) is stopped.

[0122] Thus, in an air cleaner 1, since this is detected and operation is suspended when the water currently stored in the tank 3 decreases in number from the amount of conventions, or when a tank 3 is removed from a body working [ equipment ], the situation by which operation is continued in the condition that water is not supplied to a body is avoided.

[0123] Even if at least this water does not perform electric connection, such as a signal line, for a tank 3 and a body with detection equipment 10, the water level of a tank and detection of that existence are possible. Therefore, the electric connection of a tank and a body is unnecessary and can simplify a configuration for the whole equipment.

[0124] Moreover, although made in this example as [ allot / with the self-weight of the protection-from-light lever 182 / a protection-from-light location ], you may energize so that it may always be allotted to a protection-from-light location by energization means, such as a spring. According to this, even when the whole equipment falls, operation is suspended without malfunction.

[0125] Then, the leak prevention function at the time of the fall of the air cleaner 1 concerning this invention is explained. When equipment reverses this air cleaner 1 to unexpected, it is prevented that the water for air clarification leaks from the interior of a body.

[0126] The annular drainage ditch 121 which leads the water used for air clarification as shown in drawing 9 to a tank 3 ( drawing 1 ) forms the path which does 1 round of abbreviation of from the water receptacle exhaust port 122, and results in the body

exhaust port 123. Water is flowing through this annular drainage ditch 121 continually during operation of equipment.

[0127] When an air cleaner 1 falls according to a certain external factor during operation of this equipment, with the fall detector which is not illustrated, this is detected and the drive of a motor 5 ( drawing 1 ) is stopped.

[0128] At this time, the water which was flowing as shown in drawing 27 collects on the annular drainage ditch 121 bottom, and will be in the condition of having taken up the annular drainage ditch 121 completely. Although air needs to flow into the interior of a body conversely when water leaks from a body, water collected on the annular drainage ditch 121 bars the inflow of this air. Therefore, exsorption of the water to the exterior is prevented.

[0129] Moreover, even if it is at the air cleaner's 1 halt time, when it falls to unexpected, water flows into the interior of a body through pumping plant 6 ( drawing 1 ), the annular drainage ditch 121 is covered with water, and the inflow of air is barred. Therefore, it is prevented that water begins to leak outside from the interior of a body.

[0130] In addition, since this annular drainage ditch 121 is doing 1 round of abbreviation of a body, exsorption of water is prevented when equipment falls in every direction. Thus, by forming the annular drainage ditch 121, a leak outside can be prevented with a simple configuration.

[0131] In addition, although the configuration which at least the atomiser 2 shown in drawing 1 , pumping plant 6, filter equipment 8, a tank 3, and water require for detection equipment 10 ( drawing 23 ) and a valve system 13 ( drawing 10 ) explained the example applied to the air cleaner, these invention is applied to other equipments which use liquids, such as a humidifier, a cold blast machine, and an oilstove, and is very suitable.

[0132] Drawing 28 shows the anion generator 201 concerning this invention. The anion generator 201 of this example is the same as the air cleaner 1 which the structure itself mentioned above paying attention to \*\*\*\*\* (detailed waterdrop) generated according to the centrifugal force of the atomiser 2 which is body of revolution.

[0133] Actuation of this anion generator 201 is explained with reference to drawing 1 . If the power source of the anion generator 201 is switched on, it will be sprinkled in an air intake duct 22 as minute \*\*\*\*\* from the atomiser 2 in which the water which blew off from the water pipe 43 carries out high-speed rotation, and this will serve as the water mixing section. The air inhaled from the inlet 11 passes through

the inside of this \*\*\*\*\*, and is discharged from an exhaust port 12.

[0134] As everyone knows, many anions are contained in misty water purification which disperses to perimeters, such as the basin of a waterfall, by the so-called "Lenard effect." Therefore, a lot of anions will be contained in the clarification air which is indoors exhausted according to a "Lenard effect" also in the case of the anion generator 201 of this invention, and much effectiveness over the body, such as the killing effectiveness and promotion of recovery from fatigue, can be expected by this anion. In addition, as effectiveness by the anion, a cardiopulmonary function is raised, blood pressure and breathing can be prepared, or the blood sugar level can be reduced, or there is the recovery effectiveness over a burn etc. and the anion generator of this invention can realize healthy and comfortable indoor environment. A growth promotion operation of a living thing (vegetation) etc. can also improve.

[0135] Although an anion can make it generate by discharge of the high voltage (V or more [ About 3000 ]), since harmful matter, such as ozone, will also be generated by coincidence in this case in the top where power consumption is large, there is a problem on environmental protection. In this example, as mentioned above, water is used, since an anion can be generated now by making this water into \*\*\*\*\* with an atomiser 2, high power is not needed and also harmful matter, such as ozone, is not generated.

[0136] An anion can generate a lot of anions, so that the dispersing waterdrop is more fine. Therefore, only by carrying out high-speed rotation of the atomiser 2, since more anions can be generated, the anion effectiveness can be heightened comparatively easily.

[0137]

[Effect of the Invention] In removing liquid reservoir equipment from another body, the press section is made to carry out the attachment-and-detachment device of liquid reservoir equipments, such as water poured on this invention as explained above, for pressing liquid reservoir equipment at the same time the stop condition of the stop section of liquid reservoir equipment is canceled.

[0138] Therefore, since according to this invention liquid reservoir equipment is extruded at the same time it cancels the stop condition of liquid reservoir equipment, there is effectiveness of being able to remove liquid reservoir equipment from a body by single actuation.

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is drawing of longitudinal section showing the configuration of the air cleaner 1 concerning this invention which is the gestalt of the 1st operation.

[Drawing 2] It is the perspective view showing the configuration of an atomiser 2.

[Drawing 3] It is drawing of longitudinal section showing actuation of an atomiser 2.

[Drawing 4] It is the plan of a tank 3.

[Drawing 5] It is the A-A sectional view of drawing 4 .

[Drawing 6] It is drawing of longitudinal section showing the configuration of the tank lid 71.

[Drawing 7] It is drawing of longitudinal section showing the configuration of the pump section 6.

[Drawing 8] It is the perspective view showing the configuration of filter equipment 8.

[Drawing 9] It is the cross-sectional view showing the configuration of the annular drainage ditch 121.

[Drawing 10] It is drawing of longitudinal section showing the configuration of a valve system 13.

[Drawing 11] It is drawing of longitudinal section showing the condition that the exhaust port bulb 131 closed.

[Drawing 12] It is drawing of longitudinal section showing clarification processing of air.

[Drawing 13] It is drawing of longitudinal section showing other examples of a liquid conveyance device.

[Drawing 14] It is drawing of longitudinal section (1/3) showing removal actuation of a tank 3.

[Drawing 15] It is drawing of longitudinal section (2/3) showing removal actuation of a tank 3.

[Drawing 16] It is drawing of longitudinal section (3/3) showing removal actuation of a tank 3.

[Drawing 17] It is drawing of longitudinal section showing the condition of having removed the tank 3.

[Drawing 18] It is drawing of longitudinal section showing the condition of having removed the atomiser 2 grade.

[Drawing 19] It is the perspective view showing the configuration of the connection section 153,154.

[Drawing 20] It is a sectional view explaining connection of the connection section 153,154.

[Drawing 21] It is a perspective view (1/2) explaining connection of the connection section 153,154.

[Drawing 22] It is a perspective view (1/2) explaining connection of the connection section 153,154.

[Drawing 23] some tanks 3 which at least water shows the configuration of detection equipment 10 -- it is drawing of longitudinal section.

[Drawing 24] It is the perspective view showing the configuration of a detecting element 172.

[Drawing 25] It is the front view of a detecting element 172.

[Drawing 26] some tanks 3 in which the condition that water level fell is shown -- it is drawing of longitudinal section.

[Drawing 27] It is drawing of longitudinal section showing the condition that the air cleaner 1 fell.

[Drawing 28] It is drawing of longitudinal section showing the configuration of the anion generator 201 concerning this invention which is the gestalt of the 2nd operation.

[Description of Notations]

- 1 Air Cleaner
- 2 Atomiser
- 3 Tank
- 4 Fan
- 5 Motor
- 6 Pumping Plant
- 7 Attachment-and-Detachment Device of Tank
- 8 Filter Equipment
- 9 Wastewater Section
- 81 Fixed Lever
- 82 Stop Section
- 83 Actuation Hole
- 84 Press Section
- 85 Locked Member

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